

## CLAIMS:

1. A display device comprising a plurality of independently addressable pixels, wherein said pixels comprise: a first substrate; a second substrate; a polyelectrochromic material disposed between said first substrate and said second substrate; at least two independent electrodes associated with said first substrate; an independent counter-electrode  
5 associated with said second substrate; wherein each respective electrode is connected to an independently controllable voltage source; said display device having means for controlling the voltage applied to each respective electrode for producing non-uniform electric fields in each pixel, for causing partial switching of the polyelectrochromic material from a first color state to a second color state for generating an area ratio defined pixel color state.

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2. The display device of claim 1, wherein said display device further has means for controlling the time during which voltage is applied to each respective electrode.

3. The display device of claim 1, wherein said display device further has means  
15 for controlling the voltage applied to each respective electrode of the pixel when in the second color state to cause a reset from the second color state to the first color state.

4. The display device of claim 1, wherein said display device further has memory storage means for storing a previously generated color state.

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5. The display device of claim 4, wherein said display device further has means for comparing a color state to be achieved with a previously generated color state.

6. The display device of claim 5, wherein said display device further has means  
25 for determining the required potential to be applied to each respective electrode in order to reach a desired color state.

7. A method for generating analog color states in a pixel of a display device having a first substrate; a second substrate; a polyelectrochromic material disposed between said first substrate and said second substrate, comprising the steps of:

providing at least two independent electrodes to be associated with said first  
5 substrate;

providing an independent counter-electrode to be associated with said second  
substrate;

providing connection of each respective electrode to an independently  
controllable voltage source;

10 providing means for controlling the voltage applied to each respective  
electrode for producing non-uniform electric fields in each pixel, for causing partial  
switching of the polyelectrochromic material from a first color state to a second color state to  
generate an area ratio defined pixel color state.

15 8. The method of claim 7, further comprising the step of:

providing means for controlling the time during which voltage is applied to  
each respective electrode.

9. The method of claim 7, further comprising the steps of:

20 providing memory storage means for storing a previously generated color  
state;

providing means for comparing a color state to be achieved with a previously  
generated color state;

25 providing means for determining the required potential to be applied to each  
respective electrode in order to reach a desired color state.

10. A computer program product directly loadable into the internal memory of a  
digital computer comprising software code portions for performing the following steps when  
said product is run on a computer:

30 providing to at least two independent electrodes of an independently  
addressable pixel of an electrochromic display device a connection to an independently  
controllable voltage source;

providing control of the voltage applied to each respective electrode for  
producing non-uniform electric fields in each pixel;

providing control of the time during which voltage is applied to each respective electrode.

11. A computer program product stored on a computer readable storage medium,  
5 comprising computer readable program code means for causing a computer to perform the following steps:

providing to at least two independent electrodes of an independently addressable pixel of an electrochromic display device a connection to an independently controllable voltage source;

- 10 providing control of the voltage applied to each respective electrode for producing non-uniform electric fields in each pixel;

providing control of the time during which voltage is applied to each respective electrode.